

WATER QUALITY SUMMARY

Maine measures accomplishment or "attainment" of the CWA goals by determining how well our waters support their designated or beneficial uses. The designated uses established in Maine's water classification law and Federal regulations are: fishing (including fish consumption), aquatic life support, swimming and secondary contact (such as boating), drinking water supply, agriculture, and navigation. Maine adds hydropower and industrial process and cooling water supply to its list of uses. (*Note: waste discharge is never a designated use and is only allowed by license if the designated uses are protected*). Public interest in water quality often focuses on these uses. Questions such as, "Is that water safe for swimming?", "Are fish caught there safe to eat?" and "Does the water in that lake turn green in the summer?" are frequently received by the DEP BLWQ. To answer a question about swimming, one might reply, "Yes, that river is classified as suitable for swimming according to current data that shows standards are being met." If a water body is fully supporting *all* of its designated uses, it is described as being in "attainment". If a water body is not supporting any of its designated uses in any way, or partially supporting its uses, that water body is said to be in "non-attainment" and Maine law directs the DEP to take actions to improve water quality. The chart at the right depicts the levels of use support.

A brochure outlining the Maine Water Classification Program is available from the DEP BLWQ (referred to as the BLWQ Blue Book).

In addition, Maine's water classification system contains no classifications with standards lower than the nation's "fishable and swimmable goals." **All waters which meet state standards also meet federal standards.**

Level	Water Condition	Definition
Fully Supporting	Good	Water quality meets all designated use criteria.
Threatened	Good	Water quality supports beneficial uses now but may not in the future unless action is taken.
Partially Supporting	Fair (impaired)	Water quality fails to meet designated use criteria at times.
Not Supporting	Poor (impaired)	Water quality frequently fails to meet designated use criteria.
Not Attainable		The state has performed a use-attainability analysis and demonstrated that use support is not attainable due to biological, chemical, physical, or economic/social conditions.

Maine's Water Quality Classifications and Designated Uses

RIVERINE WATERS

- Class AA** Drinking water supply, recreation in and on the water, fishing, navigation and a natural and free flowing habitat for fish and other aquatic life.
- Class A** Drinking water supply, recreation in and on the water, fishing, industrial process and cooling water supply, hydroelectric power generation, navigation and a natural habitat for fish and other aquatic life.
- Class B** Drinking water supply, recreation in and on the water, fishing, industrial process and cooling water supply, hydroelectric power generation, navigation and an unimpaired habitat for fish and other aquatic life.
- Class C** Drinking water supply, recreation in and on the water, fishing, industrial process and cooling water supply, hydroelectric power generation, navigation and a habitat for fish and other aquatic life.

LAKES AND PONDS

- Class GPA** The sole classification for all lakes and ponds is class GPA. There may be no new direct discharges of pollutants into these waters. Thus, all class GPA waters are protected for the same designated uses which are drinking water supply, recreation in and on the water, fishing, industrial process and cooling water supply, hydroelectric power generation and a natural habitat for fish and other aquatic life.

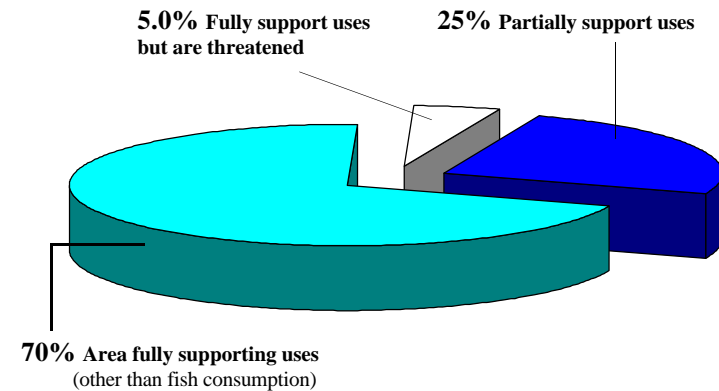
ESTUARINE & MARINE WATERS

- Class SA** Recreation in and on the water, fishing, aquaculture, propagation and harvesting of shellfish, navigation and a natural and free flowing habitat for fish and other estuarine and marine life.
- Class SB** Recreation in and on the water, fishing, aquaculture, propagation and harvesting of shellfish, navigation and an unimpaired habitat for fish and other estuarine and marine life.
- Class SC** Recreation in and on the water, fishing, aquaculture, propagation and harvesting of shellfish, navigation and a habitat for fish and other estuarine and marine life.

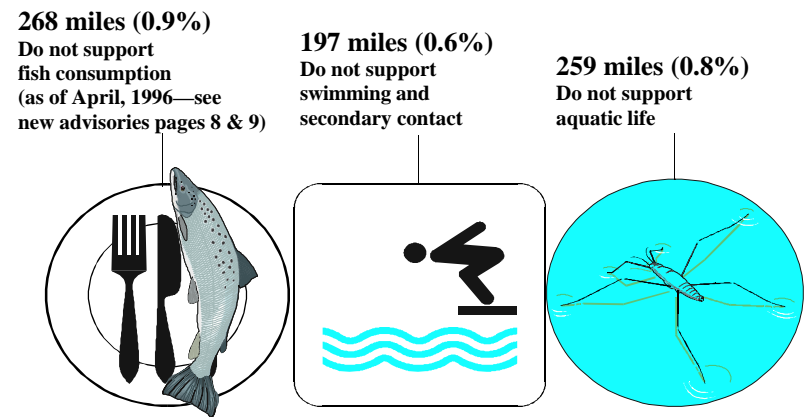
GROUNDWATER

- Class GW-A and GW-B** Class GW-A groundwater can be used for public water supplies. Class GW-B is suitable for all other usages.

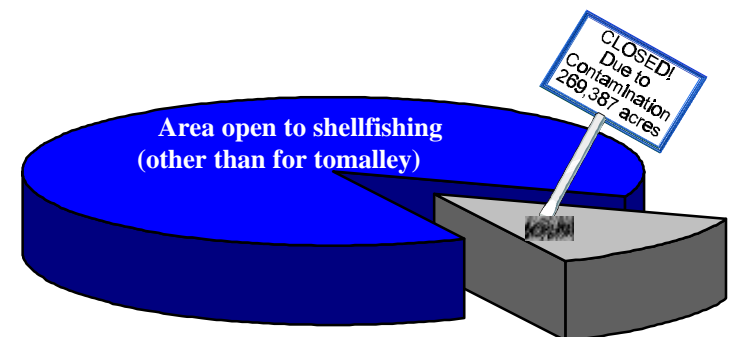
Lakes and Ponds: All Maine lakes are classified as not supporting fish consumption due to an advisory for mercury issued in April of 1994 that advises against consumption for a subpopulation of the state (see pages 8 & 9). Of the total area of significant Maine lakes and ponds shown at right, 70% fully support uses other than fish consumption. The total area not fully supporting uses is represented by the dark blue area and is due to nonattainment of one or more of the following uses: **trophic stability** (stable or improving water quality free from nuisance algal blooms—see page 14), swimming, and aquatic life support.



Rivers and Streams: The total length of rivers, streams and brooks in the state of Maine is about 31,672 miles. It is estimated that 476.4 miles (1.5% of all rivers and streams; 23% of large rivers) do not fully support the fishable-swimmable goals of the Clean Water Act. The uses not fully supported are: fish consumption, aquatic life support, and swimming and secondary contact.

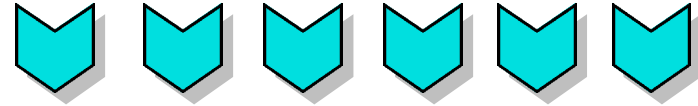


Estuarine and Marine Waters: The entire Maine coast does not fully support shellfish consumption due to a lobster tomalley advisory for a subpopulation of the state (see pages 8 & 9 for updated advisories). As of the end of 1995, there were 230 closed shellfish areas for clams and other marine mollusks, which is slightly less than 1994. The closed areas encompass approximately 269,387 of 1,825,008 total acres (14.8%) of Maine tidal flats and waters. The Maine Department of Marine Resources estimates that 98,000 acres of Maine coast capable supporting shellfish harvesting do not fully support this designated use.



Groundwater: No estimate exists for the percentage of groundwater not attaining its designated uses.

Causes and Sources Affecting Use Support

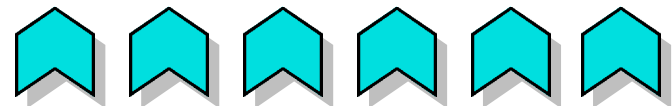


Lakes: **Nonpoint source pollution**, polluted run-off from agricultural, urban and other development activities, is the primary threat to Maine lakes. Sources include commercial and residential development, agricultural activities, and **atmospheric deposition** (polluted rain or snow or dry deposition). Runoff rich in nutrients, such as phosphorus, may result in algal blooms, **dissolved oxygen depletion** (lack of oxygen within the water), and loss of habitat that alters aquatic communities. Elevated levels of mercury have been found in fish throughout the state and have also been detected in loons and eagles which consume fish from Maine lakes.

Rivers and Streams: In addition to non-point sources of pollution, many rivers in Maine are polluted by domestic and industrial **point sources** (discharges which come directly from a pipe). These can contribute nutrients, heavy metals, and oxygen-demanding organic compounds. **Combined sewer overflows or CSO's** (those cities and towns that mix their stormwater with their wastewater are forced to release the untreated combination during major rainstorms because the treatment facility cannot handle the volume), are important sources of point source pollution. In Maine, dioxin contamination in fish tissue is a major cause of non-attainment of uses in major rivers (note next two pages for new causes for 1997).

Estuarine and Marine Waters: The most significant cause for non-attainment of uses for marine and estuarine waters is bacteria, mostly from municipal and small point sources, such as **overboard discharges or OBD's** (privately owned treatment facilities along the coast) and **CSO's**. Other sources of marine pollution include malfunctioning septic systems, and rivers which carry toxic pollutants such as dioxin, the cause of the lobster tomalley advisory (note next two pages for new advisories for 1997).

Groundwater: The most significant causes for nonattainment of groundwater classification are petroleum compounds from leaking underground and above ground storage tanks, other organic chemicals from leaking storage tanks or improper disposal practices, and bacteria from subsurface disposal systems or other sources.



Toxics and Fish Consumption

Contact: Barry Mower, DEP BLWQ, Division of Environmental Assessment, (207) 287-7777.

Since 1982, the DEP has been collecting fish tissue samples to

find out whether or not fish are safe to eat. One compound of concern in Maine rivers has been dioxin. It is known to be discharged by paper mills that bleach their pulp with chlorine and some other industrial processes. Fish and sediment samples have also been collected from 125 Maine lakes and ponds (108,423 acres) in 1993 and 1994. Significant levels of mercury were found in both warm and cold water fish. In addition, lobsters along the Maine coast have been found to contain elevated levels of dioxin in their tomalley (the green substance found in the body). These findings led to the first consumption advisories that the state issued.

The following fish and shellfish consumption advisories issued by the Maine Bureau of Health reflect information assessed as of **April, 1997**. Mercury is now a concern for all inland bodies of water, not for just lakes and ponds. Other toxins of recent concern in Maine rivers along with mercury are PCBs. Although no longer manufactured because they were found to cause cancer, PCBs were once valued for their use as cooling liquids in electrical transformers and capacitors. Like dioxin, once released to the environment, they persist for decades. Both mercury and PCBs have also been found in striped bass and bluefish tissue samples along the Maine coast.

Maine 1997 Fish Consumption Advisories

General Consumption Advisory for ALL

Inland Surface Waters (lakes, rivers, streams) due to Mercury Contamination

- ◆ *Pregnant women, nursing mothers, women who may become pregnant, and children less than 8 years old*, should NOT EAT warm water fish species (bass, pickerel, perch, sunfish, crappie) caught in any of Maine's inland surface waters. Consumption of cold water species (trout, salmon, smelt, cusk) should be limited to 1 meal per month, although older (larger) cold water fish should be avoided.
- ◆ *All other individuals* should limit consumption of warm water species caught in any of Maine's inland surface waters to 2-3 meals per month. Lower limits are advised for consumption of older (larger) fish. There is no consumption limit for cold water species.

Fish Consumption Advisories for Specific Waters

- ◆ In addition to the general statewide advisory due to mercury contamination of fish, PCB's and dioxins in fish caught in specific waters of the state have been found at levels sufficient to prompt consumption advisories for these waters. The chart on the next page outlines these specific waters, along with consumption levels and causes of advisories.

WATERBODY	SEGMENT	MAX. CONSUMPTION LEVEL (ALL SPECIES)	CHEMICALS OF CONCERN
All Waters	Statewide	See description previous page	mercury
Androscoggin River	Gilead to Merrymeeting Bay	6 meals per year	PCBs and dioxins
Kennebec River	Madison to Edwards Dam (Augusta)	1 to 2 meals per month*	PCBs and dioxins
Kennebec River	Edwards Dam (Augusta) to The Chops (Bath)	NO CONSUMPTION (freshwater fish only)	PCBs and dioxins
Penobscot River	Below Linclon	1 to 2 meals per month*	PCBs and dioxins
Salmon Falls River	Below Berwick	6 meals per year	PCBs and dioxins
East Br. Sebasticook River	Below Corinna	1 meal per month	PCBs and dioxins
West Br. Sebasticook River	Below Hartland	2 meals per month	PCBs and dioxins
Little Madawaska River and all tributaries	Madawaska Dam to Grimes Mill Road	NO CONSUMPTION	PCBs
Green Pond, Chapman Pit, Greenlaw Brook	All Waters (former Loring Air Force Base)	NO CONSUMPTION	PCBs
Red Brook	All Waters (Scarborough)	6 meals per year	PCBs

*People who eat large (older) fish are advised to use the lower consumption level, as older fish tend to accumulate PCBs, dioxins, and mercury.

Marine Fish and Shellfish Consumption Advisories

- ◆ **Lobster Tomalley:** *Pregnant women, nursing mothers, and women who may become pregnant* should **NOT EAT** tomalley (the green substance found in the body of the lobster). *All others* should limit consumption of tomalley to 1 meal per month (tomalley from 1 lobster).
- ◆ **Striped Bass:** *Pregnant women, nursing mothers, women who may become pregnant, and children less than 8 years old*, are advised to limit consumption of striped bass to 1 meal per month. *All others* should limit consumption to 2 to 3 meals per month, with the lower limit applying to those consuming large striped bass.
- ◆ **Bluefish:** Consumption of bluefish should be limited to 1 fish meal per month.

For more information regarding public health concerns of toxics, as well as sediment contamination information, see Part III, Chapter 7 of the complete 305(b).